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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/715,363

11/19/2003

Toshihiro Koyama

0020-5200P

3773

2292 7590 01/18/2007  
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EXAMINER

RUTHKOSKY, MARK

ART UNIT

PAPER NUMBER

1745

SHORTENED STATUTORY PERIOD OF RESPONSE	NOTIFICATION DATE	DELIVERY MODE
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3 MONTHS

01/18/2007

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Notice of this Office communication was sent electronically on the above-indicated "Notification Date" and has a shortened statutory period for reply of 3 MONTHS from 01/18/2007.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

**Office Action Summary**

Application No.

10/715,363

Applicant(s)

KOYAMA ET AL.

Examiner

Mark Ruthkosky

Art Unit

1745

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 19 November 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>10/5/2005</u> . | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Priority***

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### ***Information Disclosure Statement***

The information disclosure statement filed 10/5/2005 has been placed in the application file, and the information referred to therein has been considered as to the merits.

### ***Drawings***

The drawings filed on 11/19/2003 have been approved.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 2-3, 8 and 17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The amount of carbon black is based on the total weight of carbon black, which would be 1. This ratio is indefinite.

*ML*

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kizu et al. (US 2003/0165739) in view of Takami et al. (US 5,753,387.)

The instant claims are to a negative electrode for a non-aqueous secondary cell comprising graphite, carbon black and an aqueous binder, wherein said carbon black comprises particles having an aspect ratio of 1.0 to 5.0 and a largest particle size of 10  $\mu\text{m}$  or less.

Kizu et al. (US 2003/0165739) teaches a negative electrode for a non-aqueous secondary cell comprising graphite, carbon black and a binder (p. 128-141.) Carbon black is used as a conductive material. The conductive material is preferably less than 1  $\mu\text{m}$  (p. 60-71.) The amount of conductive material is preferably 22-8%. Graphite is taught as the active material. The lattice spacing is preferably 0.3355-0.3380 (p. 132.) The specific surface area is preferably 1.5-3  $\text{m}^2/\text{g}$  (col. 154.) The negative electrode material comprises particles having an aspect ratio of 1.0 to 5.0 and a largest particle size of 10  $\mu\text{m}$  or less. The preferred particle size is 5-10 microns (p. 137 and 141.) Binders are noted. The reference teaches the battery in an electronic device (col. 1.) The reference does not teach the electrode to include an aqueous binder.

Takami et al. teaches a lithium secondary battery comprising graphite, an amorphous carbon and a binder (col. 4, line 61 to col. 6, line 15; and cols. 7-9, line 5.) Carbon black is an

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amorphous carbon material. The lattice spacing is preferably not more than 0.340 and the density is 1.8 g/cm<sup>3</sup> (col. 8, line 22.) The specific surface area is preferably 0.1-5 m<sup>2</sup>/g (col. 7, line 1-10.) The negative electrode material comprises particles having an aspect ratio of 2.0 to 10.0. The preferred particle size is 5-10 microns (p. 137 and 141.) CMC and SBR binders are noted. The reference teaches mixing and pressing the electrode materials (col. 17, lines 50-55.) The reference teaches the battery in an electronic device (col. 1.) It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the binders taught in Takami et al. in the battery of Kizu et al. (US 2003/0165739) in order to bind the electrode materials in the form of an electrode. The reference shows that these materials effectively bind the electrode materials in a lithium battery.

The references are silent to the amount of carbon black in the electrode active material. It would have been obvious to one of ordinary skill in the art at the time the invention was made to adjust the amount of conductive material relative to the active material in order to have the desired conduction of electrons to/from the electrode. The prior art clearly shows that graphite intercalates lithium ions in the battery while carbon black conducts electrons. Thus, the skilled artisan would adjust the relative amounts of material to achieve the desired results.

#### ***Examiner Correspondence***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mark Ruthkosky whose telephone number is 571-272-1291. The examiner can normally be reached on FLEX schedule (generally, Monday-Thursday from 9:00-6:30.) If attempts to reach the examiner by telephone are unsuccessful, the examiner's

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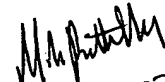
supervisor, Patrick Ryan can be reached at 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free.)

Mark Ruthkosky

Primary Patent Examiner

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1-7-07